

We claim:

- 1 1. A microfluidic method comprising:
2 taking a microfluidic device comprising a plurality of microvolumes; and
3 causing movement of material in a same manner within the plurality of
4 microvolumes by applying centrifugal forces to the material.
- 1 2. A microfluidic method according to claim 1 wherein applying the
2 centrifugal forces is performed by spinning the device.
- 1 3. A microfluidic method according to claim 1 wherein a same centrifugal
2 force is applied to material in each of the plurality of microvolumes.
- 1 4. A microfluidic method according to claim 1 wherein at least 0.01 g is
2 applied to the material in the device to cause the material to move within the
3 microvolumes.
- 1 5. A microfluidic method according to claim 1 wherein at least 0.1 g is
2 applied to the material in the device to cause the material to move within the
3 microvolumes.
- 1 6. A microfluidic method according to claim 1 wherein at least 1 g is applied
2 to the material in the device to cause the material to move within the
3 microvolumes.
- 1 7. A microfluidic method according to claim 1 wherein at least 10 g is
2 applied to the material in the device to cause the material to move within the
3 microvolumes.
- 1 8. A microfluidic method according to claim 1 wherein the microvolumes
2 each comprise a lumen having a cross sectional diameter of less than 2.5 mm.
- 1 9. A microfluidic method according to claim 1 wherein the microvolumes
2 each comprise a lumen having a cross sectional diameter of less than 1 mm.

- 1 10. A microfluidic method according to claim 1 wherein the microvolumes
2 each comprise a lumen having a cross sectional diameter of less than 500 microns.
- 1 11. A microfluidic method according to claim 1 wherein material is moved
2 within at least 4 different microvolumes in a same manner when the centrifugal
3 forces are applied.
- 1 12. A microfluidic method according to claim 1 wherein material is moved
2 within at least 8 different microvolumes in a same manner when the centrifugal
3 forces are applied.
- 1 13. A microfluidic method according to claim 1 wherein material is moved
2 within at least 12 different microvolumes in a same manner when the centrifugal
3 forces are applied.
- 1 14. A microfluidic method according to claim 1 wherein material is moved
2 within at least 24 different microvolumes in a same manner when the centrifugal
3 forces are applied.
- 1 15. A microfluidic method according to claim 1 wherein material is moved
2 within at least 96 different microvolumes in a same manner when the centrifugal
3 forces are applied.
- 1 16. A microfluidic method comprising:
2 taking a plurality of microfluidic devices, each device comprising a
3 plurality of microvolumes; and
4 causing movement of material in a same manner within the plurality of
5 microvolumes of the plurality of devices by applying centrifugal forces to the
6 material.
- 1 17. A microfluidic method according to claim 16 wherein a same centrifugal
2 force is applied to each of the plurality of devices.
- 1 18. A microfluidic method according to claim 16 wherein the plurality of
2 microfluidic devices are stacked relative to each other when the centrifugal forces
3 are applied.

1 19. A microfluidic method according to claim 16 wherein the plurality of
2 microfluidic devices are positioned about a rotational axis about which the
3 plurality of microfluidic devices are rotated to apply the centrifugal forces.

1 20. A microfluidic method according to claim 19 wherein the rotational axis
2 about which the plurality of microfluidic devices are rotated is positioned within
3 the lateral footprints of the plurality of microfluidic devices.

1 21. A microfluidic method according to claim 19 wherein the rotational axis
2 about which the plurality of microfluidic devices are rotated is positioned outside
3 of the lateral footprints of the plurality of microfluidic devices.

1 22. A microfluidic method according to claim 16 wherein material is moved
2 within at least 4 different microvolumes of each device in a same manner when the
3 centrifugal forces are applied.

1 23. A microfluidic method according to claim 16 wherein material is moved
2 within at least 8 different microvolumes of each device in a same manner when the
3 centrifugal forces are applied.

1 24. A microfluidic method according to claim 16 wherein material is moved
2 within at least 12 different microvolumes of each device in a same manner when
3 the centrifugal forces are applied.

1 25. A microfluidic method according to claim 16 wherein material is moved
2 within at least 24 different microvolumes of each device in a same manner when
3 the centrifugal forces are applied.

1 26. A microfluidic method according to claim 16 wherein material is moved
2 within at least 96 different microvolumes of each device in a same manner when
3 the centrifugal forces are applied.

1 27. A microfluidic method comprising:
2 taking a microfluidic device comprising a plurality of microvolumes; and
3 physically moving the device so as to effect a same movement of material
4 within the plurality of microvolumes.

- 1 28. A microfluidic method according to claim 27 wherein the material moved
2 in each of the plurality of microvolumes has a same quantity.
- 1 29. A microfluidic method according to claim 27 wherein the material is
2 moved in a same manner within at least 4 different microvolumes of the device by
3 the physical movement.
- 1 30. A microfluidic method according to claim 27 wherein an aliquot of material
2 is moved in a same manner within at least 8 different microvolumes of the device
3 by the physical movement.
- 1 31. A microfluidic method according to claim 27 wherein an aliquot of material
2 is moved in a same manner within at least 12 different microvolumes of each
3 device when the centrifugal forces are applied.
- 1 32. A microfluidic method according to claim 27 wherein an aliquot of material
2 is moved in a same manner within at least 24 different microvolumes of the device
3 by the physical movement.
- 1 33. A microfluidic method according to claim 27 wherein an aliquot of material
2 is moved in a same manner within at least 96 different microvolumes of the device
3 by the physical movement.
- 1 34. A microfluidic method comprising:
2 taking a microfluidic device comprising a plurality of microvolumes; and
3 accelerating or decelerating a motion of the device so as to effect a same
4 movement of material within the plurality of microvolumes.
- 1 35. A microfluidic method according to claim 34 wherein the motion of the
2 device is a rotation of the device.
- 1 36. A microfluidic method according to claim 34 wherein the motion of the
2 device is a rotation of the device and the acceleration or deceleration is caused by a
3 change in a rate of rotation of the device.

10060963.015002

- 1 37. A microfluidic method according to claim 34 wherein the material moved
2 in each of the plurality of microvolumes has a same quantity.
- 1 38. A microfluidic method according to claim 34 wherein the material is
2 moved in a same manner within at least 4 different microvolumes of the device by
3 the physical movement.
- 1 39. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 8 different microvolumes of the device
3 by the physical movement.
- 1 40. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 12 different microvolumes of each
3 device when the centrifugal forces are applied.
- 1 41. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 24 different microvolumes of the device
3 by the physical movement.
- 1 42. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 96 different microvolumes of the device
3 by the physical movement.
- 1 43. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 200 different microvolumes of the
3 device by the physical movement.
- 1 44. A microfluidic method according to claim 34 wherein an aliquot of material
2 is moved in a same manner within at least 1000 different microvolumes of the
3 device by the physical movement.